

Ayurvedic Topical Management of Mukhdushika (Acne Vulgaris): A Comparative Review of Lodhradi Lepa and Siddharthakadi Lepa

Dr.Swapnil Ganpat Godase¹, Dr. Vikramsing Chavan², Dr.Jayashree Katole³, Dr.Ashish Keche⁴

¹Postgraduate Scholar, Department of Kayachikitsa, Dr. V.J.D. Gramin Ayurvedic Mahavidyalaya, Patur, Akola, Maharashtra, India

²Professor, Department of Kayachikitsa, Dr. V.J.D. Gramin Ayurvedic Mahavidyalaya, Patur, Akola, Maharashtra, India

³Professor and Head, Department of Kayachikitsa, Dr. V.J.D. Gramin Ayurvedic Mahavidyalaya, Patur, Akola, Maharashtra, India

⁴Associate Professor Department of Kayachikitsa, Dr. V.J.D. Gramin Ayurvedic Mahavidyalaya, Patur, Akola, Maharashtra, India

Abstract—Mukhdushika, one of the *Kshudra Rogas* described in Ayurvedic classics, closely resembles Acne Vulgaris in its clinical presentation. It is characterized by *Pidika* (papules or pustules) predominantly affecting the face and is associated with pain, inflammation, discoloration, and occasional scarring. In contemporary dermatology, acne vulgaris is one of the most prevalent chronic inflammatory disorders of the pilosebaceous unit, affecting nearly 80–90% of adolescents and young adults. Although conventional treatment modalities such as topical retinoids, antibiotics, and hormonal therapy are effective, their long-term use is frequently associated with adverse effects, antimicrobial resistance, and recurrence. Ayurveda offers a holistic approach to Mukhdushika by addressing the underlying *Dosha* imbalance, particularly the vitiation of *Kapha*, *Vata*, and *Rakta*, through internal purification and external therapeutic measures. Among these, *Lepa Chikitsa* occupies an important place owing to its local anti-inflammatory, antimicrobial, wound-healing, and complexion-enhancing properties. Lodhradi Lepa and Siddharthakadi Lepa are two classical Ayurvedic formulations extensively employed in the management of Mukhdushika. Their constituent drugs possess *Kashaya*, *Tikta*, and *Katu Rasa*, *Laghu* and *Ruksha Guna*, and exhibit *Kapha-Pitta Shamana*, *Rakta Prasadana*, *Shothahara*, *Kandughna*, *Krimighna*, and *Varnya* actions, thereby targeting multiple aspects of acne pathogenesis. This review critically explores the etiopathogenesis of Mukhdushika from both Ayurvedic and modern perspectives and comprehensively discusses the pharmacological attributes, probable mechanisms of

action, therapeutic efficacy, and comparative clinical relevance of Lodhradi Lepa and Siddharthakadi Lepa. The review highlights the potential of these formulations as safe, economical, and effective topical therapies for acne vulgaris while emphasizing the need for well-designed randomized controlled clinical trials to establish stronger scientific evidence for their routine clinical application.

Index Terms—Mukhdushika, Acne vulgaris, Lodhradi Lepa, Siddharthakadi Lepa, Lepa Chikitsa, Ayurveda, Kshudra Roga, Topical therapy, Kapha-Pitta Shamana, Herbal dermatology

I. INTRODUCTION

Skin is the largest organ of the human body and acts as the primary barrier against physical, chemical, and microbial insults. Apart from its protective function, healthy skin plays a vital role in maintaining an individual's appearance, self-confidence, and psychosocial well-being. Disorders affecting the facial skin often have a profound impact on quality of life, particularly during adolescence and early adulthood, when physical appearance is closely associated with self-esteem. Among these disorders, Acne vulgaris is one of the most prevalent chronic inflammatory dermatoses affecting the pilosebaceous unit. It is estimated that nearly 85% of adolescents experience acne at some stage of their lives, while a considerable

number of adults continue to suffer from persistent or recurrent lesions.^{1,2}

Acne vulgaris is characterized by the presence of comedones, papules, pustules, nodules, and cysts that predominantly involve the face, chest, shoulders, and upper back. The disease develops due to a complex interaction between increased sebum production, follicular hyperkeratinization, colonization by *Cutibacterium acnes*, and inflammation. Several endogenous and exogenous factors, including hormonal imbalance, genetic predisposition, dietary habits, psychological stress, environmental pollution, and cosmetic products, further influence disease progression. Although acne is not a life-threatening condition, its chronic course and tendency to produce post-inflammatory hyperpigmentation and permanent scarring significantly affect the emotional and social well-being of patients.^{3,4}

Current management of acne vulgaris includes topical retinoids, benzoyl peroxide, antibiotics, hormonal therapy, and oral isotretinoin. While these modalities are effective in reducing disease severity, their long-term use is frequently associated with adverse effects such as skin irritation, dryness, photosensitivity, antibiotic resistance, and recurrence following discontinuation of therapy. Consequently, there has been growing interest in complementary and traditional systems of medicine that offer safer, economical, and holistic therapeutic alternatives.⁵

Ayurveda describes a condition known as Mukhdushika, which closely resembles Acne vulgaris in its clinical presentation and pathogenesis. Mukhdushika is included among the Kshudra Rogas and is characterized by thorn-like eruptions (*Shalmali Kantaka Sadrusha Pidika*) occurring predominantly on the face during adolescence (*Yauvana Avastha*). The disease is caused by the vitiation of Kapha, Vata, and Rakta, along with the involvement of Meda Dhatu. Classical Ayurvedic texts advocate both internal purification therapies and external applications for its management. Among these, Lepa Chikitsa occupies an important place because it directly acts on the affected skin by reducing inflammation, absorbing excessive secretions, promoting wound healing, and improving complexion.^{6,7}

Among the numerous formulations described in Ayurvedic literature, Lodhradi Lepa and Siddharthakadi Lepa are widely prescribed in the management of Mukhdushika. These formulations

contain herbs possessing Kapha-Pitta Shamaka, Rakta Prasadana, Lekhana, Shothahara, Krimighna, and Varnya properties, which are therapeutically beneficial in reducing inflammatory lesions and improving skin health. In recent years, increasing scientific evidence has demonstrated that many of their constituent drugs possess antimicrobial, anti-inflammatory, antioxidant, wound-healing, and sebum-regulating activities, providing pharmacological support for their traditional use. Therefore, a comprehensive review comparing these two classical formulations is essential to understand their therapeutic relevance and their potential role in evidence-based management of acne vulgaris.⁸

Concept of Mukhdushika in Ayurveda

Mukhdushika is one of the Kshudra Rogas described by Acharya Sushruta and later elaborated by other classical texts. The term *Mukhdushika* literally means a disorder that disfigures the face (*Mukha* = face, *Dushika* = disfiguring). Acharya Sushruta describes the lesions as "Shalmali Kantaka Sadrusha Pidika", indicating eruptions resembling the sharp thorns of the silk cotton tree (*Shalmali*). These lesions are painful, indurated, and associated with the accumulation of Meda, occurring predominantly during adolescence.

Nidana (Etiological Factors)

The causative factors of Mukhdushika primarily include dietary indiscretions and unhealthy lifestyle practices. Excessive consumption of Guru, Snigdha, Madhura, Abhishyandi, fried and oily foods, incompatible dietary combinations (*Viruddha Ahara*), irregular eating habits, and excessive intake of sweets aggravate Kapha and Meda. Lifestyle factors such as Divaswapna, Ratrijagarana, sedentary habits, psychological stress, and inadequate skin hygiene further disturb the equilibrium of the Doshas. These factors impair Jatharagni, resulting in the formation of Ama, which initiates the pathological process.⁹

Samprapti (Pathogenesis)

The pathogenesis of Mukhdushika begins with prolonged exposure to etiological factors, leading to Agnimandya and subsequent formation of Ama. Ama vitiates Kapha, Vata, and Rakta, while simultaneously affecting Meda Dhatu. Vitiated Kapha causes excessive oiliness and obstruction of the skin channels, whereas Vata produces pain and induration. Rakta

Dushti contributes to inflammation, erythema, and discoloration. The combined effect results in obstruction of the Romakupa and Srotas, producing characteristic facial eruptions. Thus, Mukhdushika is a disease involving both local tissue pathology and systemic metabolic disturbances.¹⁰

Lakshana (Clinical Features)

The classical features of Mukhdushika include:

- Shalmali Kantaka Sadrusha Pidika
- Vedana (Pain)
- Ghana Pidika (Indurated lesions)
- Shotha (Inflammation)
- Kandu (Itching)
- Daha (Burning sensation)
- Vaivarnya (Discoloration)
- Facial scarring in chronic cases

Although the disease is not fatal, recurrent eruptions and residual scars often produce cosmetic concerns and psychological distress among affected individuals.

Chikitsa Siddhanta

Management of Mukhdushika is based on Nidana Parivarjana, Shodhana, and Shamana Chikitsa. Elimination of causative factors and correction of impaired digestion are considered the first steps of treatment. Depending upon the predominance of Doshas, purification therapies such as Vamana, Virechana, and Raktamokshana may be indicated. Among the external therapeutic modalities, Lepa Chikitsa is regarded as one of the most effective interventions because it directly acts on the lesions by reducing inflammation, absorbing excessive secretions, promoting healing, and improving complexion. Classical formulations such as Lodhradi Lepa and Siddharthakadi Lepa are extensively recommended due to their Kapha-Pitta Shamaka, Rakta Prasadana, Lekhana, Shothahara, and Varnya properties.

Modern Concept of Acne Vulgaris

Acne vulgaris is a chronic inflammatory disease of the pilosebaceous unit characterized by the formation of comedones, papules, pustules, nodules, and cysts. It commonly affects sebaceous gland-rich areas, particularly the face, chest, shoulders, and upper back. The disease usually begins during puberty due to increased androgen production, which stimulates

sebaceous gland activity. However, persistent and adult-onset acne are increasingly recognized, especially among women.

The pathogenesis of acne vulgaris involves four interrelated mechanisms. Increased androgen-induced sebum production forms the initial step, followed by abnormal follicular keratinization leading to microcomedone formation. Obstruction of the follicular canal creates a favorable environment for the proliferation of *Cutibacterium acnes*, which releases lipases and pro-inflammatory mediators. These mediators activate innate and adaptive immune responses, resulting in inflammatory lesions such as papules and pustules. Oxidative stress and the release of cytokines including interleukin-1, interleukin-8, and tumour necrosis factor-alpha further amplify the inflammatory process.

Several aggravating factors have been implicated in acne, including genetic predisposition, hormonal disorders such as polycystic ovarian syndrome, high glycaemic-load diets, excessive dairy consumption, psychological stress, sleep disturbances, smoking, environmental pollution, and inappropriate cosmetic use. The severity of acne varies considerably among individuals depending on the interaction of these factors. Persistent inflammation may ultimately lead to post-inflammatory hyperpigmentation and permanent atrophic or hypertrophic scars, emphasizing the importance of early and effective intervention.¹¹⁻¹²

Correlation Between Mukhdushika and Acne Vulgaris

Although the terminology "Acne vulgaris" is not found in the Ayurvedic classics, the clinical presentation and etiopathogenesis of Mukhdushika closely resemble the features of acne vulgaris described in contemporary dermatology. Acharya Sushruta has described Mukhdushika as Shalmali Kantaka Sadrusha Pidika, painful eruptions occurring predominantly on the face during Yauvana Avastha, which corresponds to the onset of acne during puberty. The characteristic features such as Vedana (pain), Ghana Pidika (induration), Shotha (inflammation), and Medo Garbhata closely correlate with the inflammatory papules, pustules, nodules, and sebaceous involvement observed in acne vulgaris.¹³

From an Ayurvedic perspective, the disease originates due to the indulgence in Mithya Ahara and Mithya Vihara, including excessive intake of oily, spicy, heavy, and incompatible foods, irregular dietary

habits, suppression of natural urges, psychological stress, and sedentary lifestyle. These factors impair Jatharagni, resulting in the formation of Ama. The accumulated Ama vitiates Kapha, Vata, and Rakta, while also affecting Meda Dhatu. Consequently, obstruction of Romakupya and Srotas occurs, leading to the formation of inflammatory facial eruptions.

Modern dermatology explains acne vulgaris through four principal pathogenic events: increased sebum secretion, follicular hyperkeratinization, colonization by *Cutibacterium acnes*, and inflammation. These mechanisms closely resemble the Ayurvedic concepts of Kapha Vriddhi, Srotorodha, Meda Dushti, and Rakta Dushti. Excessive sebum production can be correlated with aggravated Kapha and Meda, while follicular blockage corresponds to Srotorodha. The inflammatory changes mediated by cytokines and bacterial metabolites resemble the concept of Rakta Dushti, whereas pain and induration are suggestive of Vata Prakopa. Thus, both systems recognize that acne is not merely a localized skin disorder but the manifestation of underlying systemic metabolic disturbances.¹⁴⁻¹⁶

The treatment principles described in Ayurveda also demonstrate remarkable similarity to the objectives of modern acne management. Contemporary treatment aims to reduce sebum production, normalize follicular keratinization, inhibit bacterial proliferation, suppress inflammation, and prevent scarring. Likewise, Ayurveda advocates Nidana Parivarjana, restoration of Agni, elimination of Ama, purification of vitiated Doshas, and local application of herbal formulations to restore normal skin physiology. Therefore, classical Ayurvedic topical formulations may provide a multi-target therapeutic approach in the management of acne vulgaris.

II. LODHRADI LEPA

Classical Description

Lodhradi Lepa is a classical Ayurvedic formulation indicated in the management of Mukhdushika and other dermatological disorders. The formulation has been described in classical Ayurvedic literature for external application (Bahya Chikitsa) and is particularly indicated for inflammatory skin lesions associated with excessive oiliness, discoloration, swelling, and pain. The formulation is predominantly composed of drugs possessing Kashaya, Tikta, and

Katu Rasa, Laghu and Ruksha Guna, Sheeta Virya, and Katu Vipaka, which collectively help pacify Kapha and Pitta, purify Rakta, and improve skin complexion.¹²

Major Ingredients

The exact composition may vary slightly according to classical references; however, the commonly used ingredients include:

- Lodhra (*Symplocos racemosa*)
- Vacha (*Acorus calamus*)
- Dhanyaka (*Coriandrum sativum*)
- Kustha (*Saussurea lappa*)

These drugs are triturated with an appropriate liquid medium and applied locally over the affected area.

Pharmacological Properties

Lodhra is considered the principal ingredient of the formulation and is well known for its Kashaya Rasa, Sheeta Virya, and Kapha-Pitta Shamaka properties. Classical texts describe Lodhra as Varnya, Ropana, Shothahara, and Raktaprasadana, making it highly effective in inflammatory skin disorders. Modern pharmacological studies have demonstrated significant anti-inflammatory, antioxidant, antimicrobial, and wound-healing activities of *Symplocos racemosa*. These properties help reduce erythema, swelling, and tissue damage associated with acne lesions.¹⁹

Vacha possesses Katu-Tikta Rasa, Laghu, Tikshna, and Ruksha Guna, making it useful in reducing Kapha accumulation and clearing obstructed skin channels. It also exhibits antimicrobial and anti-inflammatory activities, thereby minimizing bacterial proliferation within pilosebaceous follicles.

Dhanyaka exhibits Deepana, Pachana, Shothahara, and antioxidant properties. Experimental studies have reported antibacterial and free radical scavenging activities, suggesting its beneficial role in controlling inflammation and oxidative stress associated with acne lesions.

Kustha possesses potent Krimighna, Kandughna, Lekhana, and Shothahara actions. The presence of sesquiterpene lactones and other bioactive constituents contributes to its antimicrobial and anti-inflammatory effects, supporting its traditional use in skin diseases.

Probable Mode of Action

The therapeutic efficacy of Lodhradi Lepa can be explained through both Ayurvedic and modern perspectives. According to Ayurveda, the formulation alleviates Kapha and Pitta, purifies Rakta, removes obstruction of Romakupa, and reduces inflammation. The Lekhana property helps decrease excessive oiliness, whereas Ropana and Varnya actions promote healing of lesions and minimize post-inflammatory pigmentation.

From a modern standpoint, the formulation appears to act through multiple mechanisms. The antimicrobial constituents inhibit the growth of acne-associated microorganisms, while anti-inflammatory phytochemicals reduce cytokine-mediated inflammation. Antioxidant compounds minimize oxidative stress, improve tissue repair, and accelerate wound healing. Astringent principles help regulate excessive sebum secretion and reduce pore blockage. Therefore, Lodhradi Lepa addresses several pathogenic mechanisms involved in acne vulgaris simultaneously, making it a rational topical therapeutic option.

III. SIDDHARTHAKADI LEPA

Classical Description

Siddharthakadi Lepa is a classical Ayurvedic formulation extensively indicated in the management of Mukhdushika, Vyanga, Nilika, and other dermatological disorders. The formulation is primarily intended for external application and is composed of herbs possessing Kapha-Pitta Shamaka, Rakta Prasadana, Lekhana, Shothahara, Krimighna, and Varnya properties. Owing to these attributes, Siddharthakadi Lepa is widely used to reduce inflammatory lesions, control excessive oiliness, improve complexion, and prevent post-acne pigmentation.¹²

The commonly used ingredients of Siddharthakadi Lepa include Siddharthaka (*Brassica campestris*) along with other drugs such as Haridra (*Curcuma longa*), Daruharidra (*Berberis aristata*), Lodhra (*Symplocos racemosa*) and additional herbs mentioned in classical formulations. Most of these drugs possess Tikta, Katu, and Kashaya Rasa, Laghu-Ruksha Guna, and predominantly Kapha-Pitta Shamana activity, making them suitable for inflammatory skin diseases.

Pharmacological Properties

Siddharthaka exhibits Lekhana, Kandughna, Krimighna, and Shothahara properties. The volatile oils and glucosinolates present in mustard seeds exhibit antimicrobial and anti-inflammatory activities, which help reduce microbial colonization and inflammation in acne lesions.

Haridra is one of the most extensively studied medicinal plants in Ayurveda. Curcumin, its principal bioactive constituent, possesses potent anti-inflammatory, antioxidant, antimicrobial, and wound-healing activities. It suppresses inflammatory mediators, scavenges free radicals, and accelerates tissue repair, thereby reducing erythema, edema, and post-inflammatory pigmentation.¹⁹

Daruharidra contains berberine, a well-established antimicrobial and anti-inflammatory alkaloid. Berberine has demonstrated inhibitory activity against several pathogenic microorganisms and modulates inflammatory pathways by reducing cytokine production. These actions are particularly beneficial in inflammatory acne.

Lodhra, present in this formulation, further enhances the therapeutic effect through its Raktaprasadana, Shothahara, Ropana, and Varnya properties. Collectively, these ingredients provide synergistic antimicrobial, antioxidant, anti-inflammatory, and complexion-enhancing effects.

Probable Mode of Action

According to Ayurvedic principles, Siddharthakadi Lepa pacifies Kapha and Pitta, purifies Rakta, removes obstruction of Romakupa, and promotes normal skin physiology. The Lekhana property helps reduce excessive sebaceous secretions, while Krimighna action controls microbial involvement. Shothahara and Ropana actions reduce inflammation and facilitate rapid healing of lesions.

From the modern perspective, the formulation acts through multiple pharmacological mechanisms. It inhibits microbial proliferation, suppresses inflammatory cytokines, reduces oxidative stress, improves collagen remodeling, and accelerates epithelial regeneration. These combined actions help reduce both inflammatory and non-inflammatory acne lesions while minimizing scar formation and post-inflammatory hyperpigmentation.

Comparative Discussion

Lodhradi Lepa and Siddharthakadi Lepa are both classical Ayurvedic formulations recommended for the management of Mukhdushika. Although both formulations share common therapeutic principles, they differ slightly in their pharmacological emphasis. Lodhradi Lepa is predominantly rich in Kashaya Rasa and exhibits marked Shothahara, Raktaprasadana, Lekhana, and Varnya properties. It is particularly useful in reducing inflammation, excessive oiliness, erythema, and facial discoloration. The astringent nature of Lodhra also helps tighten the skin and reduce excessive secretions from sebaceous glands.

In contrast, Siddharthakadi Lepa possesses comparatively stronger Krimighna, Lekhana, and antimicrobial activities because of ingredients such as Siddharthaka, Haridra, and Daruharidra. These herbs are rich in phytochemicals with proven antibacterial, antioxidant, and anti-inflammatory properties, making the formulation particularly effective in inflammatory acne associated with pustules and papules.

From the Ayurvedic perspective, both formulations effectively pacify Kapha and Pitta, purify Rakta, reduce Meda Dushti, and remove obstruction of the Romakupa. Their Varnya and Ropana properties further contribute to improved complexion and prevention of post-acne scarring. Modern pharmacological evidence also supports their traditional use by demonstrating antimicrobial, anti-inflammatory, antioxidant, wound-healing, and sebum-regulating activities of their constituent herbs. Consequently, both formulations target multiple stages of acne pathogenesis rather than a single pathogenic factor, thereby offering a comprehensive therapeutic approach.

with the Ayurvedic concepts of Kapha Vriddhi, Srotorodha, Rakta Dushti, and Meda Dushti.

Lodhradi Lepa and Siddharthakadi Lepa are classical topical formulations that possess significant therapeutic potential in the management of Mukhdushika. Their constituent herbs exhibit Kapha-Pitta Shamaka, Rakta Prasadana, Lekhana, Krimighna, Shothahara, Ropana, and Varnya properties. Contemporary pharmacological studies further substantiate these actions by demonstrating antimicrobial, antioxidant, anti-inflammatory, and wound-healing activities. Thus, both formulations represent safe, economical, and holistic therapeutic options for the management of acne vulgaris. However, further well-designed randomized controlled clinical trials with larger sample sizes are required to establish stronger scientific evidence regarding their comparative efficacy and long-term clinical benefits.

IV. CONCLUSION

Mukhdushika is one of the common dermatological disorders described in Ayurveda and closely resembles Acne vulgaris in terms of clinical presentation and etiopathogenesis. The disease results from the vitiation of Kapha, Vata, Rakta, and Meda, ultimately leading to obstruction of the skin channels and formation of inflammatory facial eruptions. Modern medicine explains acne through increased sebum production, follicular hyperkeratinization, microbial proliferation, and inflammation, which show remarkable similarities